



U. S. Steel Corporation
Minnesota Ore Operations
P.O. Box 417
Mt. Iron, MN 55768

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MN Pollution Control Agency
Duluth, MN

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December 31, 2014

Mr. John Thomas
Pollution Control Specialist Senior
Compliance and Enforcement Section, Industrial Division
Minnesota Pollution Control Agency (MPCA)
525 Lake Avenue South, Suite 400
Duluth, MN 55802

Re: Revised Groundwater Sulfate Reduction Plan (GWSRP) implementation update

Dear Mr. Thomas:

Pursuant to the February 25, 2014 approval letter of the revised GWSRP for the Minntac Tailings Basin, U. S. Steel is submitting this letter to the MPCA as the second required six month implementation update. As indicated in an April 25, 2014 letter to you regarding Selection of Alternatives for Further Investigation related to the GWSRP, U. S. Steel has chosen to evaluate implementation of a PRB that utilizes zero valent iron or addition of organic substrates, in combination with the existing seep collection and return system, as a means to achieve compliance with groundwater standards at its property boundary near MW12 (focus area).

U. S. Steel is working with ENVIRON International Corporation, as well as Northeast Technical Services (NTS), to investigate and evaluate PRB technologies for use in this application. Additional data needs which are necessary to complete a site-specific evaluation of the PRB technology were determined and included in an October 25, 2014 letter to MPCA.

Field work was completed by NTS during the month of October 2014 to provide better characterization of the hydrogeologic conditions of the study area. Four temporary groundwater wells were installed via geoprobe on October 28-29, 2014 to define the characteristics of the sediments between the ground surface and the underlying bedrock. Information collected was used to create subsurface cross-section diagrams to characterize the focus area and inform the placement of additional wells that will be used to define specific hydraulic conductivities of the three distinct geologic layers that have been identified.

Continued investigation of the PRB technology as a viable alternative will require small scale testing to evaluate feasibility, performance and design factors. This small scale testing, as specified in the revised GWSRP as hydraulic modeling and microcosm study, will be completed no later than April 25, 2015.

In addition, U. S. Steel received an email from you on August 25, 2014 requesting a revision of the revised GWSRP to address elevated sulfate levels at GW013 during May and July 2014 sampling events. U. S. Steel responded in a September 4, 2014 email that a Revised GWSRP would be completed if the October 2014 sampling results indicated a definite trend in groundwater quality in that area. Based on results from the October 2014 sampling event, the GWSRP will be revised to include the evaluation of mitigation alternatives to address non-compliance at GW013, as well as the determination of the estimated time to come into compliance with the groundwater sulfate standard in that area. As specified in the email, the 2nd revision of the GWSRP will be completed within 150 days of receiving the October 2014 sampling results (i.e., by March 26, 2015).

If you have any questions or concerns regarding this matter, please contact me.

Sincerely,



Chrissy Bartovich
Director – Environmental
Minnesota Ore Operations
United States Steel Corporation
218-749-7364 – office
clbartovich@uss.com – email

cc: Tishie Woodwell, U. S. Steel
Eric Williams, U. S. Steel
Monica Gesk, U. S. Steel
Tom Moe, U. S. Steel